

## **ABSTRACT OF THE DISCLOSURE**

The discovery process comprises the device (10) generating messages (112, 120 126) which together have the purpose of identifying a predetermined number of devices which satisfy a test condition included in each message. These messages are sent respectively to the on-line devices (12, 20, 26) neighbouring device (10). To ensure that no more devices than necessary are identified by the messages, each message includes a variable which is referred to as a token bucket which indicates the number of devices to be discovered by the message. Additionally, each message includes a unique identifier. When a device (12, 20 26) receives a discovery message sent from another device, it determines if it satisfies the test condition and if so it sends an acceptance message to the originating device, decrements the token bucket in the message and forwards on any remaining tokens to another neighbour. The process stops once all tokens have been disposed of in this way. If a message reaches the end of a path without disposing of all of the tokens, the message is returned back up the path to try different paths until eventually all paths have been tried or a restriction criterion (eg maximum permitted number of hops) is met whereupon the message is returned back as a failed message to the originating device.